

FIG. 1

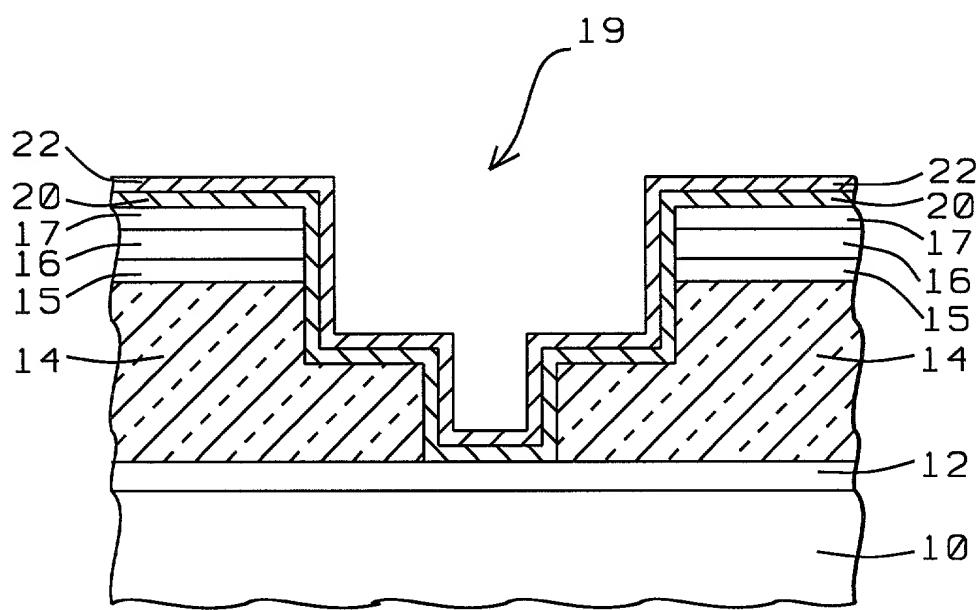


FIG. 2

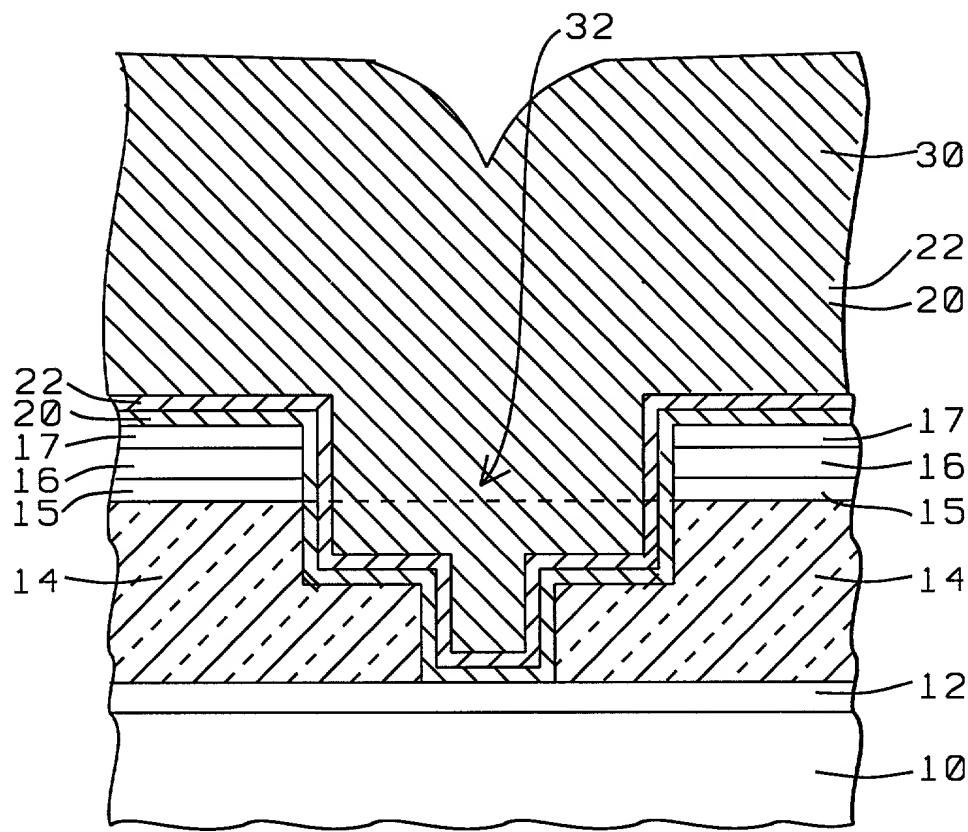


FIG. 3

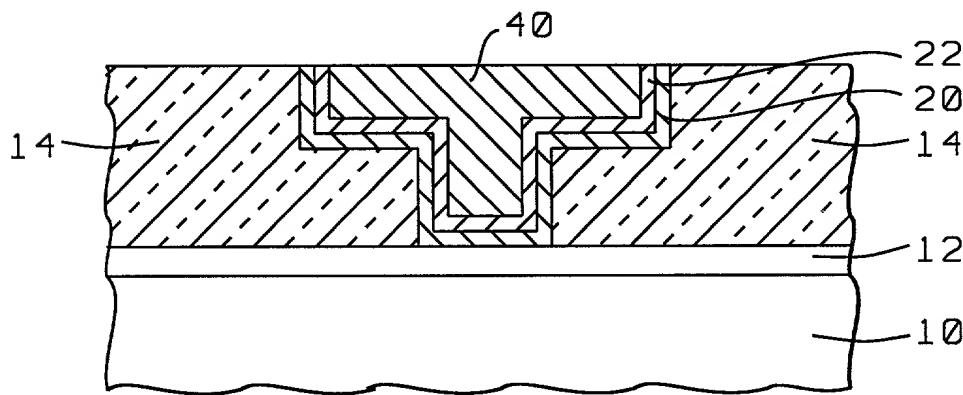


FIG. 4

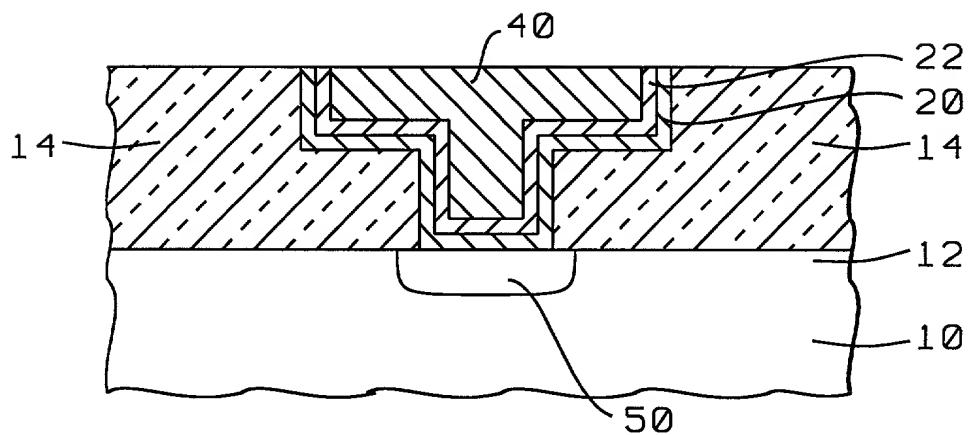


FIG. 5

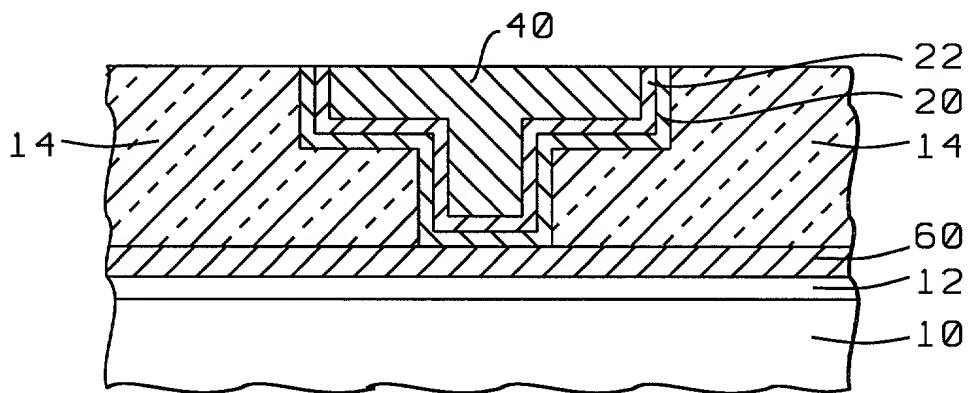


FIG. 6

| COMPARISON OF SOFT AND HARD INTERFACE LAYER FOR low-K DAMASCENE Cu CMP |                  |                     |                             |
|--|------------------|---------------------|-----------------------------|
| DAMASCENE FILM STACK   | DISH/ RANGE( A ) | EROSION/ RANGE( A ) | COMMENT                     |
| SILK 5kA/PEOX 1kA/SiON 600A  | 311/199          | 499/321             | low k + SOFT FILM+DARC      |
| SILK 5kA/PE-TEOS 1kA/SiON 600A   | 211/232          | 236/343             | low k + SOFT FILM+DARC      |
| SILK 5kA/SiN 1kA/SiON 600A   | 749/591          | 645/543             | low k + HARD FILM+DARC      |
| SILK 5kA/PEOX 500A+SiN500A/SiON 600A                                   | 659/588          | 595/424             | low k + SOFT&HARD FILM+DARC |
| SILK 5kA/SiN500A+PEOX 500A/SiON 600A                                   | 681/594          | 587/478             | low k + HARD&SOFT FILM+DARC |

FIG. 7

| COMPARISON OF SOFT AND HARD INTERFACE LAYER FOR low-K DAMASCENE Cu CMP |                       |                             |  |
|--|-----------------------|-----------------------------|--|
| DAMASCENE FILM STACK   | Cu LINE DAMAGE/DEFECT | COMMENT                     |  |
| SILK 5kA/PEOX 1kA/SiON 600A  | SOME DEFECT SPOTS     | low k + SOFT FILM+DARC      |  |
| SILK 5kA/PE-TEOS 1kA/SiON 600A   | SOME DEFECT SPOTS     | low k + SOFT FILM+DARC      |  |
| SILK 5kA/SiN 1kA/SiON 600A   | NO DAMAGE AND DEFECT  | low k + HARD FILM+DARC      |  |
| SILK 5kA/PEOX 500A+SiN500A/SiON 600A                                   | NO DAMAGE AND DEFECT  | low k + SOFT&HARD FILM+DARC |  |
| SILK 5kA/SiN500A+PEOX 500A/SiON 600A                                   | NO DAMAGE AND DEFECT  | low k + HARD&SOFT FILM+DARC |  |

FIG. 8